

CLAIMS

LIVE NAVIGATION SYSTEM

We claim:

5 1. A system for delivery of content over a wide area network, the content
being captured by the system over a time period of a live event, the system
comprising:

10 a first computer connected to a first side of the wide area network, the first
computer having a cache for storing at least one data stream and the first computer
having access to executable instruction code in an electronically readable medium
for at least:

15 identifying a live portion of the at least one data stream containing content
captured by the system, the live portion being that portion of the at least one data
stream at the first computer containing content captured more recently by the
system than the content contained in any other portion of the at least one data
stream at the first computer currently available for sending from the first computer
to a second computer, the second computer being connected to a second side of
the wide area network;

20 identifying a user position portion of the at least one data stream, the user
position portion of the at least one data stream being that portion most recently
sent from the first computer to the second computer;

receiving a first request at the first computer from the second computer;

in response to the first request, sending the live portion of the at least one data stream from the first computer to the second computer;

receiving a second request at the first computer from the second computer; and

5 in response to the second request, sending a portion of the at least one data stream from the first computer to the second computer containing content captured less recently by the system than content contained in the live portion of the at least one data stream;

10 wherein the first request and the second request may be sent from the second computer to the first computer and responded to by the first computer in alternating fashion during a time period that at least includes the time period of the live event as extended by a latency period of the wide area network.

2. The system of claim wherein the executable instruction code in an electronically readable medium is also for at least:

15 receiving a third request at the first computer from the second computer; in response to the third request, sending the at least one data stream from the first computer to the second computer beginning with a portion of the at least one data stream containing content captured less recently than the content contained in the live portion, and continuing with succeeding portions of the at least one data stream, each succeeding portion in sequence containing content more recently captured by the system; and

20 in response to the third request sending the at least one data stream from the first computer to the second computer at a content rate such that, after a period

of time, the user position portion of the at least one data stream is the live portion, unless a request other than the third request is received at the first computer from the second computer after receipt of the third request at the first computer and before the user position portion is the live portion;

5 wherein the third request may be sent by the second computer to the first computer and responded to by the first computer during a time period that at least includes the time period of the live event as extended by a latency period of the wide area network.

10 3. The system of claim 2 wherein:

15 the at least one data stream includes a first data stream and a second data stream, the first and second data streams containing substantially the same content, the first data stream being a first sequence of audio samples and the second data stream being a second sequence of audio samples created at the first computer from the first sequence of audio samples, the content rate of the second sequence of audio samples when delivered at a first data rate being greater than the content rate of the first sequence of audio samples when delivered at the first data rate;

20 the at least one data stream sent in response to the first request includes the first data stream;

25 the at least one data stream sent in response to the third request includes the second data stream; and

30 the executable instruction code in an electronically readable medium is also for at least creating the second data stream from the first data stream.

4. The system of claim 1 or 2 wherein the at least one data stream includes a first sequence of video frames.

5. The system of claim 1 or 2 wherein the at least one data stream includes a first sequence of commands for directing the second computer to retrieve and present a sequence of slides.

6. A system for delivery of content over a wide area network, the content being captured by the system over a time period of a live event, the system comprising:

10 a first computer connected to a first side of the wide area network, the first computer having a cache for storing a plurality of synchronized data streams containing content captured by the system, the first computer having access to executable instruction code in an electronically readable medium for:

15 identifying a live portion of at least one of the plurality of synchronized data streams, the live portion being that portion at the first computer containing content captured more recently by the system than the content contained in any other portion of the plurality of synchronized data streams at the first computer currently available for sending from the first computer to a second computer the second computer being connected to a second side of the wide area network;

20 identifying a user position portion of at least one of the plurality of synchronized data streams, the user position portion being that portion most recently sent from the first computer to the second computer;

receiving a first request at the first computer from the second computer;

in response to the first request, sending the live portion from the first computer to the second computer during the time period of the live event until a request other than the first request is received at the first computer from the second computer;

5 receiving a second request at the first computer from the second computer; in response to the second request, sending a portion of at least one of the plurality of synchronized data streams from the first computer to the second computer containing content captured less recently than content contained in the live portion of the plurality of data streams;

10 wherein the first request and the second request may be sent from the second computer to the first computer and responded to by the first computer in alternating fashion over a time period that at least includes the time period of the live event as extended by a latency period of the wide area network.

7. The system of claim 6 wherein the executable instruction code in an electronically readable medium is also for at least:

15 receiving a third request at the first computer from the second computer; in response to the third request, sending at least one of the plurality of data streams from the first computer to the second computer beginning with a portion containing content captured less recently than the content contained in the live portion, and continuing with succeeding portions, each succeeding portion in sequence containing content more recently captured by the system; and

20 in response to the third request, sending at least one of the plurality of data streams from the first computer to the second computer at a content rate such that,

after a period of time, the user position portion is the live portion, unless a request other than the third request is received at the first computer from the second computer after receipt of the third request at the first computer and before the user position portion is the live portion;

5 wherein the third request may be sent by the second computer to the first computer and responded to by the first computer during a time period that at least includes the time period of the live event as extended by a latency period of the wide area network.

8. The system of claim 7 wherein:

10 the plurality of data stream includes a first data stream and a second data stream, the first and second data streams containing substantially the same content, the first data stream being a first sequence of audio samples and the second data stream being a second sequence of audio samples created at the first computer from the first sequence of audio samples, the content rate of the second sequence of audio samples when delivered at a first data rate being greater than the content rate of the first sequence of audio samples when delivered at the first data rate;

15 the live portion of at least the first data stream is sent in response to the first request;

20 a portion of at least the second data stream is sent in response to the third request; and

 the executable instruction code in an electronically readable medium is also for at least generating the second data stream from the first data stream.

9. The system of claim 6 or 7 wherein the plurality of data streams includes a first sequence of video frames.

10. The system of claim 6 or 7 wherein the plurality of data streams includes a first sequence of commands for directing the second computer to retrieve and 5 present a sequence of slides.

11. A method of streaming a first data stream in a plurality of streaming modes supported at a first computer connected to a first side of a wide area network from the first computer to a second computer connected to a second side of the wide area network, the second computer having a media player program for presenting content of the data stream to a user at the second computer, a first mode of the media player program not changing in response to a change from a first of the plurality of streaming modes to a second of the plurality of streaming modes, the method comprising:

10 sending executable instruction code in a carrier signal from the first computer to the second computer for invoking the first mode of the media player program and for presenting an on-screen interface allowing a user at the second computer to request in successive fashion at least the first and the second of the plurality of streaming modes supported at the first computer;

15 in response to a request received at the first computer from a user at the second computer to change from the first of the plurality of streaming modes to the second of the plurality of streaming modes, associating time stamp values with data units of the first data stream such that the media player program at the second computer will present content of the first data stream in a manner providing the 20

user at the second computer an experience of a mode change while the media player program remains in the first mode of the media player program.

12. The method of claim 11 wherein the first mode of the media player is a mode for playing in sequence data units having successively increasing time stamp values, the first mode of the plurality of streaming modes is a live mode, the second mode of the plurality of streaming modes is a non-live mode having a first identifiable difference between an originally applied time stamp of a data unit to be next delivered from the first computer to the second computer and a time stamp corresponding to real time wherein the time stamp values of data units to be next delivered are changed from the originally applied time stamp to the time stamp corresponding to real time such that the second computer continues to receive data units that have successively increasing time stamp values when a mode change from the first of the plurality of streaming modes to the second of the plurality of streaming modes occurs.

13. The method of claim 11 wherein the first mode of the media player program is a mode for playing content at a first content rate, the first mode of the plurality of streaming modes is a mode for playing content at the first content rate, and the second mode of the plurality of streaming modes is a mode for playing content at a second content rate, the second content rate being faster than the first content rate, and wherein when streaming in the second of the plurality of modes, time stamps of data units sent to the second computer are adjusted such that a time value difference between the time stamps of a first data unit and a second data unit is less than the time value difference between the original time stamps

applied to the first data unit and the second data unit so that the media player program, while remaining in a mode for playing content at the first content rate, plays content at the second content rate.

14. In a conferencing system having a plurality of computers connected to a network, the system allowing a speaker to request at least in successive fashion display of a sequence of presentation slides on a speaker monitor connected to a speaker computer connected to the network and on a plurality of participant monitors each one of the plurality of participant monitors connected to a participant computer connected to the network, the participant computers having an interface for entering text of questions/comments and for transmitting the questions/comments across the network, a method for handling the questions/comments comprising:

interposing a Q/A slide into the sequence of presentation slides such that the speaker requests display of the Q/A slide on the speaker monitor at a time in a presentation given by the speaker at which the speaker would like to view and respond to at least one of the questions/comments;

sending the text of the at least one of the questions/comments to the speaker computer; and

on the speaker monitor merging display of the Q/A slide with display of the text of the at least one of the questions/comments when the speaker requests display of the Q/A slide on the speaker monitor.

15. The method of claim 14 further comprising:

selectively designating the Q/A slide public;

sending the Q/A slide to each of the participant computers;
only if the Q/A slide is designated public, sending the text of the at least
one of the questions/comments to each of the participant computers; and
on each of the participant monitors, merging display of the Q/A slide with
display of the text of the at least one of the questions/comments when the speaker
5 requests display of the Q/A slide.

16. The method of claim 14 further comprising:

10 prior to sending the text of the at least one of the questions/comments to
the speaker computer, sending the text of the at least one of the
questions/comments to a moderator computer, the moderator computer having an
interface for a moderator at the moderator computer to view the at least one of the
questions/comments and for the moderator to selectively indicate that the at least
one of the questions/comments is to be sent to the speaker computer;

15 sending the at least one of the questions/comments to the speaker
computer only if the moderator has indicated that the at least one of the
questions/comments is to be sent to the speaker computer.

17. The method of claim 14 further comprising:

20 presenting an interface for the moderator to enter annotation text and
selectively associate the annotation text with the at least one of the
questions/comments;

25 sending the annotation text along with the at least one of the
questions/comments to the speaker computer and displaying the annotation text on

the speaker monitor so that the speaker may determine with which question the annotation text is associated.

18. A system for the delivery of content over a wide area network, the content being captured by the system over time, the system comprising ~~at least~~ ^{at least} MJM:

5 means for receiving mode requests;

means for streaming at least one data stream in response to mode requests.

19. A system for web-conferencing comprising:

means for handling participant questions/comments.

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